

REMARKS

This paper is filed concurrently with a Request for Continued Examination (RCE). Claims 1 and 20-43 are pending. Claims 33-43 have been withdrawn in response to a Restriction Requirement of November 3, 2006. In the Office Action dated February 17, 2009, Claims 1 and 20-25 have been rejected under 35 U.S.C. § 103 over Cartier (U.S. Patent No. 4,767,177, "Cartier") or over Bouygues et al. (U.S. Patent No. 4,139,260, "Bouygues"). It is indicated that Claims 26-32 are allowed. Applicants thank the Examiner for the indication of the allowed claims.

Interview Summary

Prior to submitting this response, two telephone interviews were conducted with Examiner Kianni on June 18, 2009 (hereinafter "first interview") and July 7, 2009 (hereinafter "second interview"), in an effort to advance prosecution of the present application and to discuss the distinctions between the claimed invention and the cited references, Cartier and Bouygues.

In particular, in preparation for the second interview, applicants submitted proposed claim amendments that were believed to be distinguishable over the cited prior art in light of the discussion held during the first interview. With respect to the proposed claim amendments, the Examiner, during the second interview, indicated that such claim amendments would overcome the cited prior art. The Examiner also recommended filing a Request for Continued Examination (RCE) since the proposed claim amendments would require a new search.

Applicants wish to thank the Examiner for his time and for working with applicants to advance prosecution of the present application.

Claims 1 and 20-25 Are Not Obvious Over Cartier

Claim 1, as amended, recites:

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A pair of ferrules used for an optical fiber connector, the pair of ferrules comprising:

a first ferrule, having a body and a tip portion through which an optical fiber-inserting hole extends; and

a second ferrule which has an optical fiber-inserting hole and an end portion, said optical fiber-inserting hole of the second ferrule is substantially the same diameter as the optical fiber-inserting hole of the first ferrule and is arranged opposingly to the first ferrule so that the optical fiber-inserting hole of the second ferrule is positioned coaxially with respect to the optical fiber-inserting hole of the first ferrule, wherein:

the tip portion of the first ferrule is opposed to the second ferrule, and has a male convex shape extending to the end of the first ferrule tip portion, said male convex shape has one of a conical shape, a spheroidal shape, and a hemispherical shape,

the tip portion has substantially the same cross section as the body when the tip portion adjoins the body, the geometry of the tip portion is different than the geometry of the body, and a surface of the tip portion slopes inwardly as the tip portion extends from the body; and

the end portion of the second ferrule is opposed to the first ferrule, and has a female concave shape provided with a fitting section for receiving the tip portion of the male convex shape while making tight contact therewith, and said female concave shape has one of a conical shape, a spheroidal shape, and a hemispherical shape.

Applicants respectfully submit that Cartier does not teach or suggest the combination of features of Claim 1. For example, Cartier fails to teach a pair of ferrules including a first ferrule that "[has] a body and a tip portion through which an optical fiber-inserting hole extends," and a second ferrule that "is opposed to the first ferrule, and has a female concave shape provided with a fitting section for receiving the end portion of the male convex shape while making tight contact therewith, and said female concave shape has one of a conical shape, a spheroidal shape, and a hemispherical shape," as recited in Claim 1.

The Office Action asserts that Cartier teaches ferrules used for an optical fiber connector as claimed. In this regard, the Office Action relies on Figures 1 and 2 and Col. 5, fourth

paragraph, of Cartier. In particular, items 2 and 3 (depicted in Figures 1 and 2) are said to be a first ferrule and a second ferrule, respectively. Moreover, it is stated in the Office Action that the first ferrule has a male convex shape extending to the end of the first ferrule end portion, and the second ferrule has a female concave shape provided with a fitting section for receiving the end portion of the male convex shape while making tight contact therewith. Applicants respectfully disagree.

As shown in Figures 1 and 2, item 2 is an outer body of the male connector ferrule (item 1), and item 3 is a conical end of the male connector ferrule (item 1). As such, items 2 and 3 each are a part of the male connector ferrule. Indeed, Cartier clearly states that "the ferrule 1 has an outer body 2 with a countersunk or hollow conical end 3." See Col. 3, lines 40-41.

Applicants note that Cartier is generally directed to a method of making a male connector ferrule. In particular, Cartier clearly discloses that Figures 1-3 "show the method according to the invention used to make a male connector ferrule." (Emphasis added; Col. 3, lines 38-40.)

For at least these reasons, Cartier fails to teach at least a second ferrule having a female concave shape provided with a fitting section for receiving the end portion of the male convex shape while making tight contact therewith.

During the first interview, the Examiner indicated that item 2 could be considered equivalent to a female ferrule and item 24 could be considered equivalent to a male ferrule. Applicants respectfully disagree. Applicants submit that, even if, *arguendo*, it is assumed that item 2 is a female ferrule, item 24 cannot be equivalent to the first ferrule as recited in Claim 1. That is, the item 24 does not include a body portion or any tip portion that "is opposed to the second ferrule, and has a male convex shape extending to the end of the first ferrule tip portion," as recited in Claim 1. As seen in Figure 5, the item 24 is simply a sphere having a longitudinal bore as a part of the fixture/gauge (item 16).

Moreover, Claim 1 has been amended to specify that the geometry of the tip portion is different from the geometry of the body, and a surface of the tip portion slopes inwardly as the tip portion extends from the body. Accordingly, Claim 1, as amended, is neither disclosed nor suggested by Cartier.

Claims 1 and 20-25 Are Not Obvious Over Bouygues

Applicants respectfully submit that Bouygues also does not disclose or suggest the features as claimed. Bouygues shows in Figure 1 a male portion of an optical fiber connector and, in Figure 2, the complementary female portion of the connector. In the male portion of the connector shown in Figure 1, the left-hand portion constitutes the male section that engages within the female section shown in the right-hand portion of Figure 2. As shown, the male portion is not convex in shape, but is of a constant exterior diameter. Correspondingly, the female portion shown in Figure 2 is not a concave shape, but constitutes a fixed internal diameter.

In the Office Action, it is indicated that item 13 and item 134 shown in Figure 1 are considered equivalent to a first ferrule of Claim 1. Applicants respectfully submit that item 13 and item 134 do not constitute a first ferrule having a convex shape. Although Bouygues purportedly discloses a male portion of an optical fiber connector, item 13 is simply one of three internal components of the male portion. Item 134 is a jaw arrangement of item 13, its interior possessing teeth designed to bite into the plastic sheath of an optical fiber bundle. Accordingly, at a minimum, item 134 cannot be equivalent to a convex shape of a first ferrule. See Col. 3, lines 24-31.

Further, it is nowhere evident that Bouygues describes the complementary "female concave shape provided with a fitting section for receiving the tip portion of the male convex shape," as recited in Claim 1. In Bouygues, it is simply disclosed that "a front

portion" (item 220) of the female portion forms a location into which the front portion of the male part can be introduced. See Col. 4, lines 46-49, and Figure 2. As discussed above, however, such portion constitutes a fixed internal diameter, but not a concave shape.

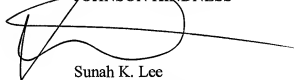
Moreover, Claim 1 has been amended to specify that the tip portion of the first ferrule has substantially the same cross section as the body when the tip portion adjoins the body, and a surface of the tip portion slopes inwardly as the tip portion extends from the body. Such features are not disclosed or suggested by Bouygues.

For at least the foregoing reasons, applicants respectfully submit that Claim 1 as amended is neither disclosed nor suggest by the cited references. Moreover, Claims 20-25 depend directly from Claim 1. Accordingly, these claims also should be found allowable.

Applicants respectfully request that all of the pending claims in the present application are now in condition for allowance and early reconsideration to this end is respectfully requested. If the Examiner has any questions concerning the foregoing, the Examiner is requested to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read "Sunah K. Lee", is written over the printed name of the signatory.

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